REMARKS/ARGUMENTS

Claims 1-22 and 25-42 are pending in this application. The Examiner has withdrawn claims 16-22 and 40-42 from further consideration in this application as being drawn to a non-elected invention. Claims 1-15 and 25-39 are, thus, the only claims under examination and these claims have all been rejected.

Reconsideration of the application is respectfully requested based on the remarks presented herein.

Claim Rejections Under 35 U.S.C. §112

Claims 1-15 and 25-39 are rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the 'written description' requirement of the statute. This rejection is respectfully traversed.

According to the Office Action (see, e.g., the portion bridging pp. 2-3) there is no adequate description contained in the specification for Figures 1a and 1b and thus, the limitation directed to, "cumulative breakthrough curve of a scanning electron microscope thickness count" is not clear because it is found in Figures 1a and 1b. The Action also states that the specification does not provide a description of the figures.

Applicants respectfully disagree, however, with the Examiner's conclusion that the term "cumulative breakthrough curve" is only defined in Figures 1a and 1b. In fact, there is a significant amount of additional disclosure describing the "metes and bounds" of this term elsewhere in the application which is sufficiently detailed such that one of ordinary skill in the relevant art, taking this disclosure into account, would clearly comprehend the meaning and scope of the indicated limitation.

More particularly, the Examiner's attention is respectfully directed to the text contained in paragraphs [0047], [0048], [0129], [0130] and [0131] of the published application (Pub. No. US 2007/0199478 A1 dated August 30, 2007) which describe how the distribution of the thickness of the pigments is obtained. Paragraph [0047] states in this regard that with the use of the disclosed process, "[a]n overview of the distribution of thicknesses of the pigments is also obtained". This 'distribution of thicknesses' is the same as the 'cumulative breakthrough curve' mentioned in paragraphs [0048] and [0131], as would be well known to one having at least an ordinary level of skill in this art. As would thus be well understood, a "cumulative breakthrough

curve" is a curve obtained by summing up the number of all particles having a distinct size or smaller. A "cumulative breakthrough curve" can be compared to a sieve having a certain mesh size, wherein all of the particles with a certain size (or smaller) are able to pass through the sieve and wherein the number of particles being of the respective size or smaller is then summed up.

Applicants therefore submit, based on the above-indicated teachings provided in the as-filed specification, that one having at least an ordinary level of skill in this art would readily be able to determine the thickness of the various particles, as well as being able to plot the cumulative breakthrough curve.

Notwithstanding, moreover, the explanation(s) provided above, applicants additionally submit that one having at least an ordinary level of skill in this field knows well that a statistical distribution curve is characterized by a d_{10} value, a d_{50} value and a d_{90} value. In the present case, these values are referred to as a "h_{10} value", a "h_{50} value" and a "h_{90} value". Attached hereto for the Examiner's consideration is pp. 40-43 of a well-known text in this field entitled, "Metallic Effect Pigments – Fundamentals and Applications" by Peter Wißling, published in 2006 by Vincentz Network GmbH & Co., KG, Hanover, Germany. The parameters "d_{10}", "d_{50}" and "d_{90}" are each defined on p. 41 of the text. As shown therein, the respective "d_{10}, d_{50} and d_{90}" values refer to the particle size distribution; however, the same principle would apply, as would be well known by those working in this field, to a thickness distribution characterized by "h_{10}, h_{50} and h_{90}" values.

The reference is listed on the form attached hereto and the Examiner is respectfully requested to make it of record in the present application. Credit card payment in the amount of $180.00 for the required fee is being submitted herewith via EFS Web.

For the reasons presented above, therefore, applicants respectfully submit that the claims of this application do, in fact, meet the 'written description requirement' set forth in 35 U.S.C. §112, first paragraph and, thus, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-15 and 25-39.

On p. 3 of the Action, furthermore, the Examiner continues to maintain the rejection (from the Office Action dated October 19, 2009) of claims 1-15 and 25-39 under 35 U.S.C. §112, second paragraph, due to alleged indefiniteness.

According to the Office Action, "Part b of claim 1 is not clear especially the section of ' and the h_{50} value as determined from the cumulative breakthrough curve of a scanning electron

microscope thickness count". The Action then echoes the basis of the written description rejection under paragraph 1 of §112 discussed above when it additionally states, "[c]umulative breakthrough curve is found in Figures 1a and 1b. but the specification does not provide a description for said figures."

In response, applicants respectfully direct the Examiner's attention to their response above to the 'written description' rejection and submit that, as demonstrated thereby, the as-filed specification of the present application does provide sufficient teaching such that one having at least an ordinary level of skill in this field of art would understand the meaning and scope of the term "cumulative breakthrough curve" as used in the specification and claims of this case. Applicants submit that the claims are thus not, in fact, indefinite and that they do meet all of the requirements of 35 U.S.C. §112, second paragraph and applicants therefore request that the Examiner reconsider and withdraw the subject rejection.

Claim Rejections Under 35 U.S.C. §103

At p. 4 claims 1-9, 14-15, 26-30, 35-36 and 38-39 are rejected under 35 U.S.C. §103 over JP 2003-082258 of Katsuhiro et al. Since the reference is in the Japanese language, the Examiner refers, for convenience, to the equivalent English translation of the Japanese reference, which is EP 1621586. The applicants respectfully traverse the rejection based on Katsuhiro.

The Katsuhiro et al. reference is discussed in detail in applicants' prior response filed in this application on April 16, 2010 and those remarks are expressly incorporated by reference into this discussion as well.

Before further discussing how the claimed aluminum pigment is distinguished from the cited art, a brief, non-limiting description of the subject pigment is believed to be in order. As recited, therefore, in claim 1 (which is the only one of the rejected claims written in independent form), the aluminum pigment, which is at least partially coated with a lubricant, has:

a) a water coverage between 40,000 and 130,000 cm^2/g,

b) a mean thickness h of less than 100 to 30 nm as calculated from the water coverage and a h_{50} value as determined from the cumulative breakthrough curve of a scanning electron microscope thickness count,

c) as determined by a scanning electron microscope thickness count, a relative width of the distribution of thicknesses Δh of from 70% to 140%, as calculated on the basis of the corresponding cumulative breakthrough curve of the relative frequencies of occurrence, according to the formula

$$\Delta h = 100 \text{ x } \frac{h_{50} - h_{10}}{h_{50}},$$

d) an aspect ratio d_{50}/h of more than 200, and

e) a roughness value of from 0.30 to 0.9, as calculated from the specific surface area as determined by the BET test method and the water coverage, according to the formula:

BET value/2 x water coverage.

Applicants submit that the Katsuhiro et al. reference is completely silent with respect to the distribution of thicknesses Δh . According to claim 1 (see above), the claimed pigment is required to have a relative width of the distribution of thicknesses Δh of from 70% to 140%. Although the pigment disclosed by the reference has overlapping ranges of thickness and this might lead to an overlapping water coverage, the reference as noted above is entirely silent with respect to the distribution of thicknesses Δh. The reference thus does not teach, or even suggest, this important feature of applicants' claimed pigment.

Further to the above, the cited reference also is completely silent with respect to the specific surface, i.e., the BET value. Thus this is another important feature of applicants' claimed aluminum pigment that is neither taught nor even suggested by the cited reference.

Still further, upon consideration of the Examiner's comments at pp. 11-13 of the Office Action, applicants respectfully submit that the distribution of the thicknesses is in fact important to the optical properties of the aluminum pigments as now claimed. The Examiner argues that paragraphs [0041] and [0042] of the published application do not disclose that thin thickness is the cause of superior optical properties. In response, applicants respectfully direct the Examiner's attention to paragraph [0016] of application Publication No. 2007/0199478 A1 which is directed to a description of PVD pigments. The paragraph states, in the second sentence, that that the distribution of thicknesses of the PVD pigments so described is "extremely low".

Additionally, paragraph [0041] of the published application states that, "The aluminum pigments of the invention are surprisingly very thin and at the same time have a narrow distribution of thicknesses. The aluminum pigments of the invention are surprisingly similar in

their optical properties to the PVD pigments. . . . ". (emphasis supplied). From the portions of applicants' specification referred to above, one learns that the superiority of the optical properties of PVD pigments is (also) based on the distribution of thicknesses of these PVD pigments, which is extremely low (see, e.g., paragraph [0016]). It therefore would be readily apparent to one of ordinary skill in this art, taking into account the teachings provided by applicants in the present specification, that a narrow distribution of thicknesses is an important property for obtaining aluminum pigments (by a milling process) with optical properties closely resembling those of PVD pigments that, likewise, have a narrow distribution of thicknesses. Thus, from the context of paragraphs [0016] and [0041] it becomes readily apparent that the distribution of thickness is not an arbitrary value as asserted by the Examiner, but rather it serves as an important property that is required for obtaining the superior optical properties offered with the presently claimed aluminum pigments which, as referenced at pp. 10-11 of applicants' previous response filed April 16, 2010 assist in distinguishing the presently claimed pigments over the disclosure contained in the Katsuhiro et al. reference.

For the reasons set forth above, therefore, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-9, 14-15, 26-30, 35-36 and 38-39 under 35 U.S.C. §103 over Katsuhiro et al.

At p. 7 of the Office Action claims 10 and 11 are rejected under 35 U.S.C.§103 over Katsuhiro et al. and further in view of USP5,474,605 to Schmid et al. This rejection is also respectfully traversed.

Claims 10 and 11 are dependent upon claim 1 and thus those claims incorporate therein all of the features recited in the independent claim. Claim 1 (and the other rejected claims identified on p. 4) is distinguishable over Katsuhiro et al. for the reasons presented above, which are expressly incorporated by reference into this discussion. According to the Office Action, the Schmid reference is cited due to its teaching that phosphorous compounds are known to impart passivation and prevent corrosion and also that silicon compounds such as silanes of formula I as set forth in the reference are used in coating aluminum flakes to prevent them from corrosion. Notwithstanding the teaching of Schmid with regard to these features, however, applicants respectfully submit that the subject reference does not remedy the deficiencies of Katsuhiro et al. as discussed above wherein the 'primary' reference evinces no recognition of the importance of a narrow thickness distribution insofar as the effect of this parameter on the optical properties of

the resultant pigments. In sum, therefore, even granting that the secondary reference of Schmid et al. does indeed disclose what is attributed to it in the Office Action, the combination of the Schmid et al. and Katsuhiro et al. references entirely fails to recognize the importance of maintaining a narrow thickness distribution insofar as this produces an important effect on the optical properties of the resultant pigments.

Thus, in light of the matters discussed above, claims 10-11 are not obvious over the combined disclosures of Katsuhiro and Schmid and thus the rejection under §103 based on the cited combination of references should be reconsidered and withdrawn.

Further to the above, on p. 8 of the Office Action claims 12-13 and 37 are rejected under 35 U.S.C. §103 over Katsuhiro et al. as applied to claim 1 and further in view of Schmid et al. and Published U.S. Patent Application No. 2002/0169244 to Ostertag et al. The rejection is respectfully traversed.

Claims 12 and 13 depend (indirectly) from claim 1 and further define a passivating anti-corrosion layer that may be coated onto the pigment according to claim 1. Claim 37 depends upon claim 13 and recites that the silicon surface of the aluminum pigment is coated with silanes. According to the Office Action, Ostertag et al. is cited as disclosing that in the case of metallic pigments, one may form a passivating anti-corrosive layer onto the pigment using silicon oxide, zirconium oxide, aluminum oxide/hydroxide, phosphate, chromium oxide, borate or mixtures thereof. Even granting that the reference does contain the disclosure described in the Office Action, applicants respectfully submit that, as noted above, the subject reference does not remedy the deficiencies of Katsuhiro as discussed above wherein the 'primary' reference evinces no recognition of the importance of a narrow thickness distribution insofar as the effect of this parameter on the optical properties of the resultant pigments. In sum, therefore, even granting that the secondary Schmid and Ostertag references indeed disclose what is attributed to them by the Office Action, when Schmid or Ostertag are taken in combination with Katsuhiro, the resultant disclosure evinces no recognition of the importance of maintaining a narrow thickness distribution insofar as this produces an important effect on the optical properties of the resultant pigments.

For the reasons above, therefore, the Examiner is respectfully requested to reconsider and withdraw the rejection under §103 of applicants' claims 12-13 and 37.

Still further, at p. 9 of the Action claim 25 and 31-34 are rejected under 35 U.S.C. §103 over Katsuhiro as applied to claim 1 and further in view of USP No. 3,776,473 to Casey et al. The rejection is respectfully traversed.

Claim 25 is directed to a nail varnish containing the pigment according to claim 1. Claims 31-34 are directed to, respectively a plastic composition, a security printing ink, a ceramic composition and a cosmetic formulation, each comprising the aluminum pigment according to claim 1. Due to their dependence upon claim 1, each of the subject claims includes all of the features recited in the subject independent claim. The secondary Casey et al. reference is cited, according to the discussion at p. 10 of the Office Action, since it is drawn to aluminum flake pigments produced by wet ball milling aluminum powder in the presence of a lubricant and that it further discloses that aluminum pigments have many utilities such as in cosmetics, security printing inks, plastics, ceramics, nail polishes, etc. However, applicants respectfully submit that the Casey et al. reference does not remedy the deficiencies of Katsuhiro et al. as discussed above wherein the 'primary' reference evinces no recognition of the importance of a narrow thickness distribution insofar as the effect of this parameter on the optical properties of the resultant pigments. Thus the combination of Katsuhiro et al. and Casey et al. neither teaches nor even suggest what is recited in any of claims 25 and/or 31-34. In light of the situation as described above, therefore, the Examiner is respectfully requested to reconsider and withdraw the rejection under 35 USC §103 of claims 25 and 31-34.

THIS CORRESPONDENCE IS BEING SUBMITTED ELECTRONICALLY THROUGH THE PATENT AND TRADEMARK OFFICE EFS FILING SYSTEM ON December 29, 2010.

Respectfully submitted,

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